UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/532,791 | 03/22/2000 | Takenori Goto | 000350 | 8585 |

23850 7590 07/25/2002

ARMSTRONG,WESTERMAN & HATTORI, LLP
1725 K STREET, NW.
SUITE 1000
WASHINGTON, DC 20006

| EXAMINER | |
|---|---|
| NGUYEN, TUAN M | |
| ART UNIT | PAPER NUMBER |
| 2828 | |

DATE MAILED: 07/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/532,791 | GOTO ET AL. | |
| | Examiner | Art Unit | |
| | Tuan M Nguyen | 2828 | |

*– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on *22 March 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

PAUL IP
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## DETAILED ACTION

### *Drawings*

1. The drawing (figs 1-16) is objected for minor informaty. The boxes show in figures 1-16 are not labeled as required by 37 CFR 1.83(a). Applicant is required to submit a drawing correction for approval as require by rule 37 CFR 1.123

### *Claim Rejections - 35 USC § 102*

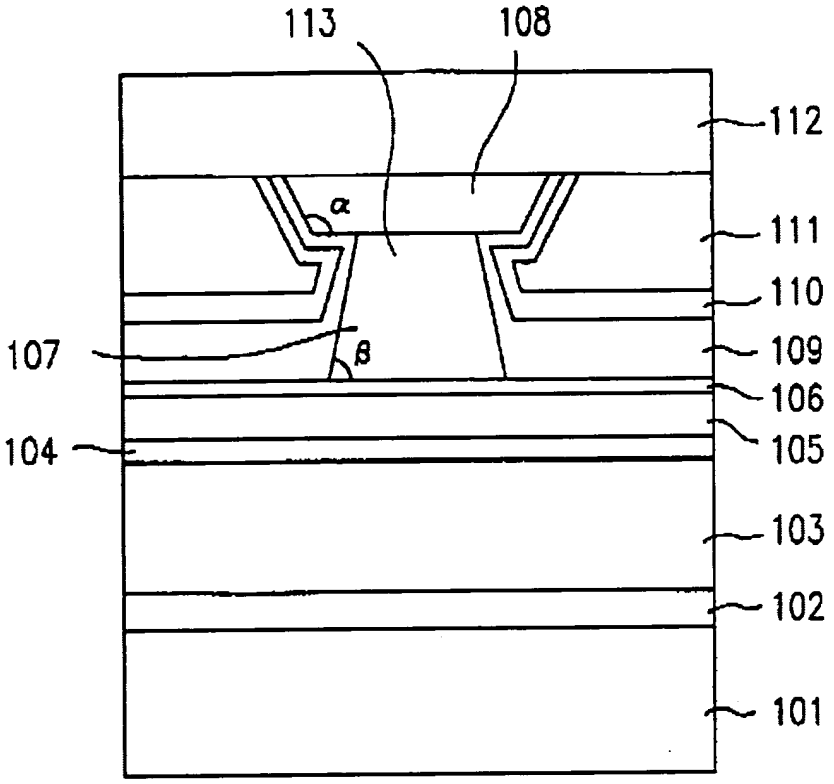
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 4, 6, 8-9, 11 and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Ikeda et al (US patent 5,956,361).

With respect to claims 1 and 11, Ikeda et al discloses a semiconductor laser and a method for producing the same comprising an active layer (104), a lower cladding layer (103), a first upper cladding layer (105), a second upper cladding layer (107) including a cap layer (108) and a ridge (113), a current blocking (109), a first and second protection layers (110, 111), a contact layer (112), a buffer layer (102) and a substrate (101), note cols 8-13, see fig 1.

*FIG. 1*




With respect to claim 2, Ikeda et al discussed the cladding layer has the function of confining light in said the active layer (104), see fig. 1.

With respect to claims 4 and 6, Ikeda et al discussed the third semiconductor is a contact layer (212), note col. 1, see fig 9D.

With respect to claims 8 and 19, Ikeda et al discussed about the shape of the cladding layer change, note cols. 13-15, see fig 2-3B.

With respect to claims 9 and 20, Ikeda et al discussed about the active layer (104), the lower cladding (103), the first upper cladding layer (105) and the second upper layer (107), note cols. 7-15, see fig 1.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 5, 10, 16, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al (US patent 5,956,361) in view of Tanaka et al (US patent 6,298,079 B1).

With respect to claims 5 and 16, Ikeda et al discussed all above except for the third semiconductor layer formed on said cladding layer and having a smaller band gap than of said cladding layer. Whereas Tanaka et al discussed about the cladding and the smaller band gap, note col. 8. For the benefit of having a smaller band gap than of said cladding layer, it would have been obvious to one having ordinary skill in the art at the

time the invention was made to provide Ikeda the band gap as taught or suggested by Tanaka.

With respect to claims 10 and 20, Ikeda et al discussed all above except for the first and second nitride based semiconductor layer containing at least one of boron, thallium, gallium, aluminum, indium and current blocking layer containing at least one of boron, thallium, gallium, aluminum and indium. Whereas Tanaka discussed about the first , second nitride semiconductor based and current blocking containing at least one of boron, thallium, gallium, aluminum and indium, note cols 13, see fig 1. For the benefit to have the first, second nitride based semiconductor layer and current blocking layer containing at least one of boron, thallium, gallium, aluminum and indium, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Kato with at least one of boron, thallium, gallium, aluminum and indium as taught or suggested by Tanaka.

6. Claims 3, 7, 12, 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al (US patent 5,956,361) in view of Yamamoto et al (US patent 6,064,079).

With respect to claims 7 and 18, Ikeda et al discussed all above except for the approximately constant from its lower and upper end of the first and the second width. Whereas Yamamoto shows in the figure 1A the width which is approximately constant of the lower and upper end, note cols 4-6 , see fig 1A. For the benefit to have the constant width for upper and lower end, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Ikeda with the constant width for upper and lower end as taught or suggested by Yamamoto.

With respect to claim 12, Ikeda et al discussed all above except for the striped opening. Whereas Yamamoto discussed about the striped opening, note cols. 4-12 see figs. 1-6. For the benefit to have the striped opening, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Ikeda with the striped opening as taught or suggested by Yamamoto.

With respect to claims 3 and 17, Ikeda et al discussed all above except for the cladding layer having a carrier concentration which is not less than that of said cladding layer. Whereas Yamamoto discussed about the cladding layer and the carrier concentration, note cols. 2-6. For the benefit to have carrier concentration, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Ikeda with the carrier concentration as taught or suggested by Yamamoto.

7. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al (US patent 5,956,361) in view of Yamamoto et al (US patent 6,064,079) in further view of Ishikawa et al (US patent 6,118,801).

With respect to claims 13 and 14, Ikeda et al and Yamamoto et al discussed all above except for the different of first and second material. Whereas Ishikawa discussed the different material in the composition formula, note cols. 9-43. For the benefit of using the different material, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Ikeda with the different material as taught or suggested by Ishikawa.

With respect to claim 15, Ikeda et al and Yamamoto et al discussed all above except for the selectively growing a second semiconductor layer on the first

semiconductor layer inside said striped opening and a current blocking layer on the first semiconductor layer on both side of second semiconductor. Whereas Ishikawa discussed about the stacking and growing of second semiconductor on the first semiconductor layer inside the striped open, note cols 19-30. For the benefit of having the growing a second semiconductor layer on the first semiconductor layer inside the striped opening , it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Ikeda the growing a second semiconductor layer on the first semiconductor layer inside the striped opening as taught or suggested by Ishikawa.

**Citation Of The Pertinent References**

8. The prior art made of record and not relied upon us considered pertinent to applicant's disclose.

The patent to Hata (US patent 6,248,559 B1) discloses a gallium nitride group compound semiconductor light emitting device and method for fabricating the same.

The patent to Nitta et al (US patent 6,281,526 B1) discloses nitride compound light emitting device and method for fabricating same

The patent to Hata (US patent 6,111,275) discloses gallium nitride group compound semiconductor light emitting device method for fabricating the same.

The patent to Ishikawa et al (US patent 5,987,048) discloses a gallium nitride based compound semiconductor laser and method of manufacturing the same.

***Communication Information***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan M Nguyen whose telephone number is (703) 306-0247. The examiner can normally be reached on 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 306-5511 for regular communications and (703) 306-5511 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.

Paul Ip
SPE
Art unit 2828

TMN
July 13, 2002